Feasibility of guidelines for the management of threatened miscarriage in general practice/family medicine

Margot Fleuren, Dirk Wijkel, Marten de Haan, Richard Grol, Fons Sips

Objectives: To determine the feasibility in daily practice of guidelines on threatened miscarriage for general practice. The guidelines on threatened miscarriage were issued in 1989 by the Dutch College of General Practitioners.
Methods: Prospective recording of appointments by 86 general practitioners (GPs) in the Netherlands, who agreed to adhere to the threatened miscarriage guidelines. Interviews with the GPs after the recording period of 12 months. Adherence to each recommendation and reasons for non-adherence were measured.
Results: 75 GPs actually recorded 251 patients. The GPs adhered to most recommendations in the guidelines except as regards carrying out physical examinations at both first appointment and follow-ups. Reasons for non-adherence with the physical examinations were mainly based on the GP's criticism of these recommendations. Scarcely anyone adhered to the recommendation on follow-up appointments after ten days and a counselling consultation after six weeks. The GP's criticism of these recommendations, and the patient's wishes were mentioned as reasons for non-adherence. In 9% of the cases, the GP's policy was overridden either by the patient arranging an ultrasound scan via a locum or a midwife, or by the obstetrician taking control after the GP had requested an ultrasound scan.
Conclusions: In daily practice, care providers may encounter obstacles in adherence to guidelines. As for the threatened miscarriage guidelines, the GP's criticism of the guidelines was an important reason for non-adherence, followed by the situation of the specific patient (such as medical history) and the patient's wishes. Furthermore, poor collaboration between GPs, midwives and obstetricians was another obstacle in adherence. Those recommendations that are most often not adhered to should be reviewed. Furthermore, to reduce conflicts about ultrasound scans and referrals, agreement on policy on threatened miscarriage should be established between GPs, midwives and obstetricians.
Eur J Gen Pract 1998;4:11-7.

Keywords: imminent miscarriage, threatened miscarriage, guidelines, general practice.

Margot Fleuren, social scientist.
Dirk Wijkel, social scientist.
Research Centre Primary/Secondary Health Care, University Hospital VU Amsterdam, PO Box 7057, 1007 MB Amsterdam, the Netherlands.
Marten de Haan, professor of general practice.
Department of General Practice and Nursing Home Medicine, University VU, Van der Boechorststraat 7, 1081 BT Amsterdam, the Netherlands.
Richard Grol, professor of general practice.
Centre for Research on Quality in Family Practice, Universities of Nijmegen and Maastricht, PO Box 9101, 6500 HB Nijmegen, the Netherlands.
Fons Sips, general practitioner.
Helvoirtseweg 183A, 5263 EC Vught, the Netherlands.

Correspondence to: Margot Fleuren.
Submitted: 28th May 1997; accepted in revised form: 7th January 1998.

Introduction

Approximately 10% of all pregnancies end in a recognised spontaneous miscarriage before completion of the 16th week of gestation, with vaginal bleeding usually appearing as the first sign.[1,2] However, there can be other causes of the blood loss, such as cervical erosion or cervical polyp. In a large number of cases, bleeding in the first trimester occurs for no apparent reason.[3] Vaginal bleeding in pregnant women is consequently often labelled as threatened miscarriage. Several studies show that threatened miscarriage is a stressful event, and the psychological sequelae can be enormous.[4-6] Therapeutic measures are of no value, but providing information and guidance seem to be important aspects when dealing with threatened miscarriage.[4,5,7]

Obstetric care in the Netherlands is mainly provided in primary health care by independent midwives and general practitioners (GPs). Only high-risk patients are referred to an obstetrician. Symptoms of threatened miscarriage are generally not considered an indication for referral to an obstetrician because a miscarriage is usually a self-regulating process.[8] When there are no complications, such as an

Table 1. Most important recommendations in the threatened miscarriage guidelines.*

First appointment

GPs should make a diagnosis themselves by doing the following examinations:
- percussion and palpation
- speculum examination
- vaginal examination

In case of a threatened miscarriage GPs should wait and see, which means:
- explain situation and, if possible, give reassurance
- no ultrasound scan
- not refer the patient to an obstetrician

GPs should make a follow-up appointment after 10 days. However, if blood loss or pain increases, if the woman has a fever or is anxious, then she should contact the GP immediately.

Follow-up appointment

GPs should carry out the following examinations:
- speculum examination
- vaginal examination

In case of a complete miscarriage GPs should:
- explain situation
- not use ultrasound scan
- not refer the patient to an obstetrician

In case of an incomplete miscarriage i.e. if the woman is still losing blood, GPs should:
- make an ultrasound scan themselves i.e. without referring to an obstetrician

In case of an intact pregnancy GPs should:
- not use ultrasound scan
- not refer the patient to an obstetrician

Care after the miscarriage

GPs should plan a counselling consultation six weeks after the miscarriage. GPs should only refer to an obstetrician after three or more consecutive miscarriages to find out why the woman miscarried.

* A translation of the guidelines in English, French, German or Spanish is available at the Dutch College of General Practitioners, PO Box 3231, 3502 GE Utrecht, the Netherlands.

ectopic or a molar pregnancy, the woman can stay under guidance of her GP or midwife. However, over the years there has been a shift towards hospital treatment; in 1960 only 52% of general practice patients with symptoms of miscarriage were referred, as against 83% in 1987.[8,9] In hospital, a miscarriage is generally treated by curettage. In the case of an uncomplicated miscarriage, there is no indication for this procedure which has both risks and disadvantages.[10] It leads to a generally self-regulating process being medicalised.

In 1987, the Dutch College of General Practitioners developed a guideline policy programme to improve the quality of general practice. The guidelines are published in the Dutch scientific journal 'Huisarts & Wetenschap' for GPs and about 85% of all GPs receive the guidelines in this way.[11] One of the first guidelines to be developed was on threatened miscarriage.[8] The majority of recommendations are based on scientific evidence. Two obstetricians were involved, giving comments on the guidelines before publication. The guidelines include recommendations for patient history taking and diagnostic and therapeutic management for first and follow-up appointments (table 1). A survey among GPs and midwives showed that most of them accepted the guidelines, whereas obstetricians did not.[12,13]

One of the major problems with guidelines in general is their implementation; GPs do not automatically adhere to them.[14,15] Various factors may cause this non-adherence, such as problems relating to the nature of the guidelines, the characteristics of the GP, or the setting in which the GP works.[14-19] Several authors stress the importance of research to evaluate guidelines. Even if they are evidence-based, their feasibility in daily practice has to be studied.[20,21] Knowing the obstacles that prevent a successful implementation is a starting point in identifying solutions to the problem.[22,23] We studied the feasibility of the threatened miscarriage guidelines by investigating the extent to which GPs adhered to them and what reasons they had for non-adherence.

Methods

Subjects

From a representative group of GPs who had participated in a study on the acceptance of the threatened miscarriage guidelines,[12] we selected those who reported seeing more than three women with threatened miscarriage each year. We sent them the complete guidelines. The inclusion criteria for the study were: the GPs should accept the guidelines, at least the recommendations regarding referrals, ultrasound scans, and physical examinations; they should be willing to adhere to the guidelines for twelve months and record all patients they saw with threatened miscar-

riage; if the GP worked in a joint practice, all colleagues should meet the previous criteria. Fifty GPs and 36 colleagues met the criteria.

Training
The GPs received training beforehand, given by a GP and a researcher (first author), during which all the recommendations were discussed. The GPs prepared two case histories, and several cases from their own practice were discussed. Strategies for adherence were provided when the GP's customary management of threatened miscarriage seemed to differ from the policy outlined in the guidelines.

Procedure
From 1993 to 1994 a prospective study, based on GPs records, was carried out. For a period of twelve months, the 86 GPs recorded on a special record form all patients with blood loss or pain before completion of 16 weeks' gestation; also recorded were other symptoms that might indicate threatened miscarriage, such as not feeling pregnant any more, fear of miscarriage or absence of foetal heartbeat on a routine ultrasound scan. Only new episodes were recorded. The GPs recorded every appointment during surgery hours, every phone call and every home visit. They recorded such topics as history taking, diagnostics, diagnosis, treatment and policy regarding the follow-up care.
Following this period of twelve months, every patient was discussed in a telephone interview with the GP, supported by the record forms and patient's charts. GPs were asked their reasons for non-adherence to the guidelines for each recommendation. A researcher (first author) conducted the interviews. All answers given by the GP were noted and transcribed directly after the interview.

Variables and analyses
Two researchers analysed adherence to the guidelines. For this purpose, a code list was developed by the two researchers and two GPs on the basis of the guidelines. The two researchers independently coded the recommendations of 30 randomly chosen record forms to assess their reliability. A coefficient of agreement of 0.76 was obtained (Cohen's kappa adjusted for chance). The reasons for non-adherence that the GPs gave during the interview were divided into four main categories,[14,16] relating to:

- the GP him/herself: lack of knowledge or skills; general attitude, for example, tendency to refer patients in general; criticism of specific recommendations; specific patient situation, for example, the obstetric history;
- other care providers: colleague GPs; midwives; obstetricians;
- the patient: wishes or pressure; compliance;
- the setting: organisational problems, for example, lack of ultrasound scan facilities.

GPs' answers were assigned by three researchers to the various categories on a consensus basis. Only those categories to which an item was related are presented; the number of items within one category is not presented. Furthermore, only those reasons for not adhering to the recommendations which related to diagnostics and policy were recorded, as these seemed to be the most important. The results will be presented at patient level, but adherence was also examined at GP level.

Results

Among the 86 GPs, 11 recorded zero patients. The remaining 75 GPs recorded 251 patients; a mean of 3.3 patients per GP. The main reason for those not submitting patient records was that the GPs concerned did not see any patients with symptoms of threatened miscarriage. The breakdown in terms of age, gender and membership of the Dutch College of General Practitioners showed that the respondents corresponded to the national GP population.[23] However, more GPs from group practices were involved in the study; 35% in the study group compared with 19% at the national level (χ^2-test, $p<0.01$).
The mean age of the patients included was 29.6 years (sd=5.0; range=16-43). The patients were older than the national population of pregnant women (χ^2-test, $p<0.001$). No data are available at national level with regard to the percentage of women who have a miscarriage relating to their age.[24] The mean duration of the pregnancy at the first appointment was 8.6 weeks (sd=2.5; range=4-16). Of these patients, 67% had been pregnant before and 32% had suffered one or more previous miscarriages. The main reasons for patients contacting the GP were blood loss (94%), anxiety or not feeling pregnant any more (29%) and pain (24%). The mean number of recorded appointments was 2.6 (sd=1.3; range=1-8).

Adherence to the guidelines
Although most recommendations were adhered to (table 2), adherence was low for carrying out physical examinations at both first and follow-up appointments. Follow-up appointments were often not made after the advised period of ten days; among those patients in which the recommendation was not adhered to, 64% had been recalled within seven days and 36% after 15 days or not at all. The GPs also did not adhere to the advice on providing information about the cause and treatment of threatened miscarriage, or to the advice on giving patients instructions to make contact again if the pain increased, if they had a temperature or if they were worried. Finally, in the majority of cases counselling consultations following the miscarriage did not take place.

Reasons for non-adherence
Table 3 shows the categories of reasons the GPs gave for non-adherence to the recommendations.
In general, criticism of a specific recommendation was mentioned most often as a reason for non-adherence then the situation of the specific patient, the patient's compliance and the patient's wishes. However, this sequence differs in each recommendation.
The most frequently mentioned reasons for non-adherence as regards physical examinations at the first appointment

Table 1. Most important recommendations in the threatened miscarriage guidelines.*

Recommendation	Intervention	Adherence (%)
Patient history questions	+ feeling pregnant	85
	+ volume of blood loss	99
	+ duration of blood loss	97
	+ nature of blood loss	92
	+ loss of tissue	46
	+ duration of pain	87
	+ nature of pain	89
	+ feeling ill	71
	+ having a temperature	64
Diagnostics first appointment	+ percussion or palpation	49
	+ speculum examination	67
	+ vaginal examination	63
	- ultrasound scan	93
Information first appointment	+ cause	63
	+ course	83
	+ treatment	50
Policy first appointment	- referral to obstetrician	94
	- medication	99
	- curettage	100
	+ follow-up between 7-14 days*	58
Instructions first appointment	- bed rest	98
	- collect blood clots	100
	+ appointment if pain increases	63
	+ appointment if blood loss increases	72
	+ appointment if having a fever	47
	+ appointment if worried	34
Diagnostics follow-up 7-14 days	+ percussion or palpation*	26
	+ speculum examination*	39
	+ vaginal examination*	39
Diagnostics follow-up appointments	- ultrasound scan**	86
Policy follow-up appointments	- medication**	97
	- referral to obstetrician**	95
Counselling after miscarriage	+ took place 3-6 weeks afterwards***	12

\+ Is advised unless there are complications as specified in the guidelines
\- Is not advised unless there are complications as specified in the guidelines
* n=235; 16 patients are excluded as their first appointment was within 7-14 days after the symptoms started
** n=201; 50 patients had no follow-up appointments
*** n= 167: 84 patients had an intact pregnancy

related to the GP's criticism of the recommendations, for example, 'it provides no additional information for patient history', 'the patient had minor symptoms' or 'I only carry out an examination when I suspect an ectopic pregnancy'. Other reasons related to the specific situation of the patient, for example, 'the patient was going to have an ultrasound scan anyway'. Furthermore, some GPs said that their colleagues acting as locums had not carried out the examinations. More than one third of the GPs mentioned that criticism of these recommendations had played a role with at least one of their patients.

As regards planning a follow-up appointment, most reasons for non-adherence again related to the GP's criticism of the recommendation; they either thought the period was too long or that a follow-up was not necessary. Furthermore, the patient's specific situation was mentioned, such as, 'the patient had to return immediately after an ultrasound scan was made anyway'.

The patient's wishes had also played a role: 'the patient wanted an ultrasound scan. To prevent her from going to

hospital on her own initiative, I let her come back the next day'. Again, more than one third of the GPs said that criticism of this recommendation had played a role in non-adherence with at least one of their patients.
Reasons for not carrying out the physical examinations at the follow-up appointment mainly related to the GP's criticism: 'I only examine the patient when she is losing blood or suffering pain because this indicates a complicated miscarriage'. Furthermore, the patient's compliance was mentioned, for example, 'the patient did not show up at the follow-up appointment'. Finally, the situation of the specific patient had played a role, such as, 'there was a clear diagnosis because the patient had been given an ultrasound scan'. More than half of the GPs reported criticism of this recommendation with at least one of their patients.
The main reasons for not holding a counselling consultation again related to the GP's criticism of the recommendation, such as, 'I had already discussed this on other occasions' or 'I don't think patients need this'. But the patient's wishes or the compliance were also mentioned, for example, 'the patient didn't want it'. More than half of the GPs mentioned criticism of this recommendation with at least one of their patients.
Patient requests were frequently mentioned as a reason for performing an ultrasound scan or for referral to an obstetrician, for example, 'her boyfriend threatened me, so I referred her'.
In 22 cases the GP reported that his own policy had been overridden. Eight patients wanted an ultrasound scan and arranged it, without the GP's knowledge, by going to a midwife (n=4), or to hospital (n=3) or to a colleague acting as a locum (n=1). Another two patients went to hospital on their own initiative to see an obstetrician. Further, in 12 cases in which the GP had requested an ultrasound scan on his own authority, i.e. without a referral, the obstetrician nevertheless assumed control.

Discussion

Our study shows that the threatened miscarriage guidelines are only feasible to some extent. In daily practice GPs are confronted with several obstacles hindering successful implementation of these guidelines. In general, four main obstacles can be distinguished. First of all, criticism of a recommendation by the GP. Secondly, the patient specific situation (such as obstetric history), followed by the patient's wishes for a different policy. Finally, a difference in management between (colleague) GPs, midwives and obstetricians, impeding the individual policy of the GP.
The following recommendations in the threatened miscarriage guidelines do not seem feasible as they are frequently not adhered to. Adherence is low as regards physical examinations at both first and follow-up appointments, planning a follow-up appointment after ten days and having a counselling consultation six weeks after the miscarriage. Criticism of these recommendations is frequently mentioned as a reason, though the patient's compliance or wishes also play an important role. More than one third of the GPs reported that criticism of these recommendations had played a role with at least one of their patients. Several recommendations on providing information and giving instructions are not adhered to, such as information about the cause and possible treatment of threatened miscarriage or instructions to contact the GP if the patient is worried. These results are noteworthy as providing information and guidance are important aspects in the treatment of threatened miscarriage. We did not ask the GPs explicitly about their reasons. Nearly one third of the patients had suffered a miscarriage before. This could have been a reason for not giving detailed information or instructions; these patients might have already been informed.
The recommendations on neither performing an ultrasound scan nor referring if there are no complications seem feasible from the GP's viewpoint, as they are generally adhered to. However, patients, midwives and obstetricians do not always share this view. In 9% of the cases, the GP's policy was overridden either by the patient arranging an ultrasound scan without the GP's knowledge or by the obstetrician assuming control.

This study has some limitations. In the first place, the participating GPs are not representative of the national GP population because they were self selected as having accepted the guidelines in principle. This is of minor concern as we investigated the feasibility of the guidelines. The argument runs that if these motivated GPs are not able to adhere to the guidelines, other less motivated GPs will not be able to either. One may assume that, at national level, adherence will be even lower. Secondly, the fact that many reasons for non-adherence related to the GPs themselves may be because it was they who were interviewed. If the patient had been interviewed, this would probably have revealed more patient-related reasons. Finally, the large number of reasons relating to criticism of the recommendations seem to be inconsistent with the fact that the GPs were selected as having accepted the guidelines. However, acceptance does not in general rule out criticism of specific recommendations. Furthermore, acceptance occurs in the mind. In actually trying to put the guidelines into practice one may, on second thoughts, not agree with them. Finally, the interview at the end of the twelve-month period might have caused some recall problems. However, there are no indications that recall bias may have played a role in this study. As the incidence of threatened miscarriage in GP practice is fairly low, and it is quite an emotional event, most GPs could easily recall cases. Furthermore, during the interviews the GPs referred to copies of the record forms and patients charts, so they were easily able to remember what had happened to the patient and why they had acted in a specific way.

What is to be done with these results? First of all, we suggest that the Dutch College of General Practitioners should critically review the recommendations relating to physical examinations, as many GPs reported that it added nothing to patient histories, and that the results were not al-

Table 3. Number of reasons the GPs gave for not adhering to the recommendations for the first and follow up appointments.*

	GPs				Other care providers		Patients		Setting	Total
	Knowledge of skills	General attitude	Criticism recommendation	Specific patient situation	GP	Midwife obstetrician	Wish	Compliance	Organisation	
Diagnostics first appointment										
+ percussion or palpation	15	10	79	12	12	0	4	2	0	134
+ speculum examination	6	6	44	12	7	0	7	2	3	87
+ vaginal examination	11	7	47	12	11	0	5	2	1	96
- ultrasound scan	1	0	3	5	0	0	11	0	0	20
Policy first appointment										
- referral to obstetrician	0	0	1	5	3	2	6	0	0	17
- curettage	0	0	1	0	1	0	0	0	0	2
+ follow-up 7-14 days	0	9	46	21	13	1	17	0	4	111
Diagnostics 7-14 days										
+ percussion or palpation	5	3	89	30	1	8	2	35	4	177
+ speculum examination	1	4	59	29	1	8	2	35	4	143
+ vaginal examination	1	3	60	30	1	8	2	35	4	144
Diagnostics follow-up appointments										
- ultrasound scan	9	5	3	6	0	1	17	0	0	41
Policy follow-up appointments										
- referral to obstetrician	1	1	1	1	0	0	6	0	0	10
Counselling after miscarriage										
+ took place 3-6 weeks afterwards	0	11	71	7	0	0	27	28	2	146
Total	50	59	504	170	50	28	106	139	22	1128

* More than one reason could be mentioned
\+ Is advised unless there are complications as specified in the guidelines
\- Is not advised unless there are complications as specified in the guidelines

ways interpretable at such an early stage in pregnancy. The recommendations relating to the timing of the follow-up appointment and the counselling consultation should also be reviewed. Perhaps both periods should be shorter. Patients' views and wishes about the policy in case of threatened miscarriage are important issues in this respect. In another study, we are concentrating on this matter. Furthermore, health or economic consequences of non-adherence to the recommendations have to be taken into account. Additional research into this matter is certainly needed. Secondly, since there is no treatment to prevent threatened miscarriage, good guidance becomes important. Therefore, adherence among GPs to the recommendations on providing information, giving instructions and holding counselling consultations could be improved. Thirdly, we strongly suggest that at the national level, organisations for general practice, midwifery and obstetrics should agree on a policy on threatened miscarriage. This may reduce conflicts at local level about ultrasound scans and referrals. Multidisciplinary guidelines involving GPs, midwives, obstetricians and patients would be ideal. ■

References

1 Miller JF, Williamson E, Glue J, Gordon YB, Grudzinskas JG, Sykes A. Fetal loss after implantation. A prospective study. *Lancet* 1980;2:554-6.
2 Wilcox AJ, Weinberg CR, O'Connor JF, Baird DD, Schlatterer JP, Canfield RE, et al. Incidence of early loss of pregnancy. *N Engl J Med* 1988;319:189-94.
3 Chamberlain G. Vaginal bleeding in early pregnancy I. *Br Med J* 1991;302:1141-3.
4 Rosenfeld JA. Bereavement and grieving after spontaneous abortion. *Am Fam Physician* 1991;43:1679-84.
5 Janssen HJEM. A longitudinal prospective study of the psychological impact of pregnancy loss on women [thesis]. Nijmegen: Katholieke Universiteit Nijmegen, 1995.
6 Neugebauer R, Kline J, Shrout P, Skodol A, O'Connor RP, Geller PA, et al. Major depressive disorder in the six months after miscarriage. *JAMA* 1997;277:383-8.
7 Bennebroek Gravenhorst J, Christiaens GCML, Kanhai HHH, Treffer PE. Aan de zwangerschap gebonden afwijkingen. [Abnormalities relating to pregnancy]. In: Treffers PE, Heintz APM, Keirse MJNC, Rolland R, editors. Obstetrie en gynaecologie. De voortplanting van de mens. [Obstetric and gynaecology. Reproduction of humans]. Utrecht: Bunge, 1993.
8 Flikweert S, Ligtenberg WJJ, Sips AJBI. Standaard (dreigende) mis-

kraam. [Guidelines on threatened miscarriage]. *Huisarts Wet* 1989;32:138-43.
9 Velden J van der, Bakker DH de, Claessens AAMC, Schellevis FG. A national study of disease and intervention in general practice. Report on morbidity in general practice. (Nationale studie naar ziekten en verrichtingen in de huisartspraktijk. Basisrapport morbiditeit in de huisartspraktijk.) Utrecht: NIVEL, 1991.
10 Nielsen S, Halin M. Expectant management of first-trimester spontaneous abortion. *Lancet* 1995;345:84-6.
11 Thomas S. De positie van standaarden en adviezen van het Nederlands Huisartsen Genootschap. [The position of guidelines and recommendations of the Dutch College of General Practitioners]. *Ned Tijdschr Geneesk* 1994;138:2638-40.
12 Fleuren M, Grol R, Haan M de, Wijkel D. Care for the imminent miscarriage by midwives and GPs. *Fam Prac* 1994;11:275-81.
13 Fleuren MAH, Haan M de, Grol RPTM. Sluit de standaard '(Dreigende) miskraam' van het Nederlands Huisartsen Genootschap aan bij het beleid van gynaecologen? [Do the threatened miscarriage guidelines of the Dutch College of General Practitioners correspond with the policy of obstetricians? *Ned Tijdschr Geneesk* 1995;139:930-4.
14 Grol R. Implementing guidelines in general practice care. *Quality in Health Care* 1992;1:184-91.
15 Lomas J. Teaching old (and not so old) docs new tricks: effective ways to implement research findings. In: Dunn EV, Norton PG, Stewart M, et al, editors. Disseminating research/changing practice. London, Thousand Oaks: Sage publications, 1994:1.
16 Grol RTPM, Everdingen JJE van, Casparie AF. The implementation of guidelines and change. (Invoering van richtlijnen en verandering.) Utrecht: De Tijdstroom, 1994.
17 Grimshaw J, Freemantle N, Wallace S, Russel I, Hurwitz B, Watt I, et al. Developing and implementing clinical practice guidelines. *Quality in Health Care* 1995;4:55-64.
18 Conroy M, Shannon W. Clinical guidelines: their implementation in general practice. *Br J Gen Pract* 1995;45:371-5.
19 Woolf SH. Practice guidelines: what the family physician should know. *Am Fam Phys* 1995;51:1455-63.
20 Haines A, Feder G. Guidance on guidelines. Writing them is easier than making them work. *Br Med J* 1992;305:785-6.
21 Thomson R, Lavender M, Madhok R. How to ensure that guidelines are effective? *Br Med J* 1995;311:237-442.
22 Norr KF. Using quantitative and qualitative methods to assess impact on practice. In: Dunn EV, Norton PG, Stewart M, et al, editors. Disseminating research/changing practice. London, Thousand Oaks: Sage Publications, 1994:109-26.
23 NIVEL. Facts and figures from GP records: dated 1994. (Cijfers uit de registratie van huisartsen: peiling 1994.) Utrecht: NIVEL, 1994.
24 Centraal Bureau voor de Statistiek. Vademecum gezondheidsstatistiek in Nederland 1996. [Vademecum 1996 health statistics in the Netherlands]. Voorburg/Heerlen: Centraal Bureau voor de Statistiek, 1996.